

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listings of Claims:

1. (currently amended) A method for manufacturing a cooling element to be used in the structure of a flash smelting furnace, a blast furnace, an electric furnace or other metallurgical reactor, said cooling element comprising a copper housing-made of one single piece, in which housing there is formed a channel system for the circulation of the cooling medium, lining elements made of fireproof material, said housing and lining element including means for connecting them together, the method comprising connecting the lining element and the housing so that the lining element ~~can move is movable~~ in the vertical direction with respect to the housing in response to thermal expansion during operation of said furnace or reactor.
2. (previously presented) A method according to claim 1, further comprising in the surface of the housing, arranging vertical grooves, in which grooves the lining elements are placed.
3. (previously presented) A method according to claim 1 further comprising in the lining element arranging a bracket-like edge part that fits in the groove provided in the housing.
4. (previously presented) A method according to claim 2, further comprising in the vertical groove arranged on the surface of the housing, placing lining elements along the whole width of the groove, so that the lining elements are located on top of each other.

5. (previously presented) A method according to claim 2, further comprising narrowing the groove arranged in the housing from the groove bottom towards the surface of the housing.
6. (previously presented) A method according to claim 2, wherein the width of the groove bottom is essentially 55 – 100 millimeters.
7. (previously presented) A method according to claim 2, wherein the width of the groove orifice is essentially 50 — 95 millimeters.
8. (previously presented) A method according to claim 2, wherein the depth of the groove is essentially 30 — 60 millimeters.
9. (previously presented) A method according to Claim 2, further comprising placing the cooling element in the furnace so that the grooves are positioned in the vertical direction.
10. (previously presented) A method according to Claim 2, further comprising narrowing the bottom part of the housing downwards.
11. (previously presented) A method according to Claim 2, further comprising connecting the lining elements to the housing before the cooling element is installed in the furnace.

12. (previously presented) A method according to Claim 1, further comprising connecting the lining elements to the housing after the housing is installed in the furnace.
13. (previously presented) A method according to Claim 1, further comprising in the depth direction of the cooling element extending the lining elements to outside the housing.
14. (previously presented) A method according to Claim 1, further comprising completely covering with the lining elements that surface of the housing that gets into contact with the melt.
15. (previously presented) A method according to Claim 1, further comprising interconnecting the cooling elements at the junctions provided in the elements.
16. (previously presented) A method according to claim 15, further comprising in the auxiliary groove formed at the junction placing lining elements in the vertical direction.
17. (currently amended) A cooling element to be used in the structure of a flash smelting furnace, a blast furnace, an electric furnace or other metallurgical reactor, said cooling element comprising a copper housing made of one single piece, in which housing there is formed a channel system for the circulation of the cooling medium, lining elements made of fireproof material, said housing and lining element including means for connecting them together, the lining element and the housing being connected so that the lining element is movable in the vertical direction with respect to the housing in response to thermal expansion during operation of said furnace or reactor.

18. (previously presented) A cooling element according to claim 17, wherein on the surface of the housing there are arranged vertical grooves, in which the lining elements are placed.